Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-24. (canceled)

25. (new) A method of exposing an object to uniform microwave radiation, the method comprising the steps of:

disposing an object in a chamber;

exposing the object to microwave radiation over a frequency range;

measuring a power spectrum of the microwave radiation; and

modifying the amplitude of the microwave radiation at selected frequencies so that the resulting power spectrum is substantially uniform over the frequency range.

26. (new) The method of claim 25 further comprising the step of measuring microwave absorption of the object as a function of frequency.

27. (new) The method of claim 26 wherein the modifying step is performed to compensate for the microwave absorption of the object.

28. (new) The method of claim 25 wherein the exposing step utilizes electronic mode-stir excitation or microwave-stirred excitation.

29. (new) The method of claim 25 wherein the measuring step comprises digitizing sensed signals.

30. (new) The method of claim 25 further comprising the step of disposing one or more microwave feeds in the chamber.

31. (new) The method of claim 30 wherein at least two of the one or more microwave feeds are orthogonally disposed.

32. (new) The method of claim 30 wherein three microwave feeds are disposed in the chamber.

33. (new) The method of claim 30 wherein a microwave sensor is disposed in the chamber corresponding to the direction of each of the one or more microwave feeds.

34. (new) The method of claim 33 further comprising the step of separately processing a signal from each sensor.

35. (new) The method of claim 25 further comprising the step of feeding the measured power spectrum back to a microwave generator.

36. (new) The method of claim 35 wherein the measuring step comprises applying a Fast Fourier Transform to the measured power spectrum.

37. (new) The method of claim 35 wherein the exposing, measuring, feeding, and modifying steps are repeated to form a feedback loop.

38. (new) The method of claim 37 wherein a total chamber-insertion power is increased with each successive iteration of the feedback loop.

39. (new) The method of claim 25 further comprising the step of controlling the amplitude of the microwave radiation within a sub-band of the frequency range.

40. (new) The method of claim 25 further comprising the step of generating frequencies of microwave radiation using a method selected from the group consisting of balanced mixing of a modulating signal about a modulated center frequency, quadrature mixing of a modulating signal, direct signal synthesis, and a combination thereof.